

CLAIMS:

1. A polishing composition for polishing an object having a portion including silicon dioxide and a portion including polycrystalline silicon, the polishing composition consisting of a liquid component including water and water-soluble amine, and the water-soluble amine comprising at least one of triethylenetetramine and tetraethylenepentamine and is dissolved in the water.

2. The polishing composition according to claim 1, wherein the portion including silicon dioxide is an insulating film, and the portion including polycrystalline silicon is a conductive film, wherein the insulating film has a surface including a trench, and the conductive film is located on the insulating film and has an inner portion located inside the trench and an outer portion located outside the trench, where the polishing composition is for polishing the object to remove the outer portion of the conductive film.

3. The polishing composition according to claim 1, wherein the content of the water-soluble amine in the polishing composition is 0.001 to 10% by weight.

4. The polishing composition according to claim 1, wherein the content of water in the polishing composition is 90 to 99.998% by weight.

5. The polishing composition according to claim 1, wherein a selection ratio, which is the ratio of the ability to polish silicon dioxide to the ability to polish polycrystalline silicon, of the polishing composition is 100 or more.

6. A method for polishing an object having an insulating

film including silicon dioxide and a conductive film including polycrystalline silicon, with the insulating film having a surface including a trench, and the conductive film being located on the insulating film and having an inner portion located inside the trench and an outer portion located outside the trench, the method comprising the steps of:

preparing a polishing composition, wherein the polishing composition consists of a liquid component including water and water-soluble amine, and wherein the water-soluble amine comprises at least one of triethylenetetramine and tetraethylenepentamine and is dissolved in the water; and polishing the object using the polishing composition to remove the outer portion of the conductive film.

7. The method according to claim 6, wherein the step of polishing the object using the polishing composition to remove the outer portion of the conductive film, includes compressing the object and a polishing pad against one another, and rotating the object and the polishing pad in directions opposite to each other while supplying the polishing composition to the polishing pad, wherein the pressure for compressing the object and the polishing pad against one another is 3.5 to 58 kPa.

8. The method according to claim 6, wherein the step of polishing the object using the polishing composition to remove the outer portion of the conductive film, includes compressing the object and a polishing pad against one another, and rotating the object and the polishing pad in directions opposite to each other while supplying the polishing composition to the polishing pad, wherein the relative linear speed between the object and the polishing pad during polishing is 30 to 100 m/min.

9. The method according to claim 6, wherein the step of

polishing the object using the polishing composition to remove the outer portion of the conductive film comprises the sub-steps of:

removing part of the outer portion without using said  
5 polishing composition; and

polishing the object using said polishing composition to remove the remaining part of the outer portion.

10 10. The method according to claim 9, wherein the sub-step of removing part of the outer portion without using said polishing composition comprises removing silicon dioxide, which is formed by oxidation of polycrystalline silicon, on the surface of the conductive film.

15 11. The method according to claim 10, wherein said removing silicon dioxide is performed by dissolving the silicon dioxide using hydrofluoric acid.

20 12. A method for manufacturing a semiconductor device, the method comprising the steps of:

preparing a polishing composition, wherein the polishing composition consists of a liquid component including water and water-soluble amine, and wherein the water-soluble amine comprises at least one of triethylenetetramine and  
25 tetraethylenepentamine and is dissolved in the water;

preparing a semiconductor substrate having an insulating film including silicon dioxide;

forming a trench on the surface of the insulating film;

forming a conductive film including polycrystalline  
30 silicon on the insulating film to prepare an object having the insulating film and the conductive film, with the conductive film located on the insulating film and having an inner portion located inside the trench and an outer portion located outside the trench; and

35 polishing the object using the polishing composition to

remove the outer portion of the conductive film.